Amendments to the Claims:

This listing of the claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method for loading samples on a microarray to perform hybridization reactions, the microarray being formed of a plurality of sub-arrays on a common substrate, the method comprising the steps of

placing the samples to be loaded onto a sample loading array spaced apart from the microarray until the hybridization reactions are performed, the samples located on the sample loading array in physical alignment with the location of the sub-arrays on the microarray, the sample loading array being a planar member having two planar surfaces with a plurality of micro-channels formed extending into it between the two surfaces, the samples being loaded into the micro-channels without the samples contacting the microarray, and a porous membrane attached to it on one of its faces; and

then placing the sample loading array in contact with the microarray under conditions so that molecules in the samples can hybridize to probes in the aligned sub-arrays, the conditions including fluid placed on the membrane to permit the samples in micro-channels to flow into contact with the substrate on the microarray so that a hybridization reaction can occur.

2. (withdrawn) A microarray hybridization chamber for parallel loading of samples comprising:

a sample loading array comprising a plurality of micro-channels having a first open end on a first side of the channel array and a second open end on a second side of the channel array, said first end and second end defining a channel in fluid communication with the first side of the channel array and the second side of the channel area, each channel having a longitudinal axis passing through its center and defining the center of the channel;

a microarray comprising a plurality of sub-arrays;

a membrane in contact with the second side of the channel array to close the second end of the micro-channels and to allow for the selective passing of liquids and molecules through the membrane and through the micro-channels; and

a gasket, the gasket being placed between the first side of the channel array and the microarray so as to provide a hybridization chamber, and wherein the center of the channels are aligned with the center of the sub-arrays.

3. (withdrawn) The chamber of Claim 2 wherein the gasket is dual sided and semi-adhesive.

4. (withdrawn) The chamber of Claim 2 wherein the sub-arrays are divided by a hydrophobic barrier.

5. (withdrawn) The chamber of Claim 4 wherein the hydrophobic barrier comprises of a hydrophobic group-bearing phosphoramidite.

6. (withdrawn) The chamber of Claim 5 wherein the hydrophobic group-bearing phosphoramidite is trityl protected phosphoramidite.

7. (currently amended) A method for loading in parallel at least one sample into a plurality of sub-arrays for conducting hybridization reactions, the method comprising the steps of:

providing a planar sample loading array which is formed as a planar member with two opposed surfaces and also comprising a plurality of micro-channels extending throughout the sample loading array between the opposed surfaces, each channel having a longitudinal axis passing through its center and defining the center of the channel;

providing a microarray comprising a plurality of sub-arrays on a common substrate, the microarray and the sample loading array being spaced apart until the hybridization reactions are performed;

providing a membrane on the surface of the sample loading array away from the subarray to allow for the selective passing of liquids and molecules through the membrane and through the micro-channels;

depositing different samples in a plurality of micro-channels without the samples contacting the microarray; and

placing the sample loading array in contact with the microarray such that the ends of the micro-channels opposite of the membrane are aligned with the sub-arrays of the microarray, so that different samples are placed in contact with different sub-arrays of the microarray and a hybridization reaction can occur.

8. (original) The method of Claim 7 wherein the samples are placed in contact with the subarray using either centrifugal force or pressure.

9. (original) The method of Claim 7 wherein the samples are placed in contact with the subarray using a vacuum.

10. (original) The method of Claim 7 wherein there is a gasket located between the sample loading array and the microarray.

11. (original) The method of Claim 7 wherein the sub-arrays are divided by a hydrophobic barrier area, wherein the area comprises an activated substrate.

12. (previously presented) The method of Claim 11 wherein the hydrophobic barrier comprises a hydrophobic group-bearing phosphoramidite.

13. (original) The method of Claim 7 wherein the sample is deposited into the plurality of micro-channels using a delivery system capable of simultaneous delivery of samples to multiple sites.

14. (withdrawn) A method for simultaneously hybridizing a microarray having multiple sub-arrays, the method comprising the steps of:

providing a first microarray which includes a plurality of sub-arrays;

depositing a sample for each sub-array on a planar sample loading array;

placing against the microarray a gasket to encompass the sub-arrays containing the sample; and

placing in contact with the gasket the sample loading array with each sample aligned with a one of the sub-arrays as to provide a sandwich hybridization chamber.

15. (withdrawn) The method of Claim 14 wherein the sub-arrays are divided by a hydrophobic barrier.

16. (withdrawn) The method of Claim 15 wherein the hydrophobic barrier is formed by a hydrophobic group-bearing phosphoramidite bound to the substrate.

17. (withdrawn) The method of Claim 14 wherein the sample is deposited into a plurality of sub-arrays using a delivery system capable of simultaneous delivery of samples to multiple sites.

18. (withdrawn) The method of Claim 14 wherein the delivery system is either a bundle of capillary tubes, a fluid handling robot, or a robot designed for manufacturing spotted arrays.